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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,808

07/28/2005

Konrad Kapser

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EXAMINER

SHABMAN, MARK A

ART UNIT

PAPER NUMBER

2856

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DELIVERY MODE

06/11/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,808	<b>Applicant(s)</b> KAPSER ET AL.	
	<b>Examiner</b> MARK SHABMAN	<b>Art Unit</b> 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/11/2008</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 17-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Flach US Patent 5,905,203 (hereinafter referred to as Flach) in view of Seidel US Patent 6,122,965 (hereinafter referred to as Seidel).

Regarding **claim 17**, Flach discloses an acceleration sensor comprising an inertial mass surrounded by a frame, which is suspended by a set of two torsion spring elements 22 from a frame as seen in figure 2. The two springs are aligned with one another as indicated by the axis of rotation 29 along a plane parallel to a surface of the inertial mass when the inertial mass is at rest without being deflected creating a pivot axis for the inertial mass as claimed. As seen in the top view of figure 2 or the side views in figures 7 and 8, the inertial mass is suspended asymmetrically by the torsion spring elements thereby placing the center of mass of the inertial mass offset by a first distance (b) from the reference plane and a second distance (a) from a respective second plane that extends perpendicular to said reference plane and along the pivot axis as claimed. The center of mass 30 is set such that an "offset angle" could be defined by distances (a) and (b) such that the angle created would have a tangent

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function equal to  $b/a$  as is claimed. In order for such an angle to be greater than 20 degrees as is claimed, the inertial mass would have to be designed such that the ratio of  $a$  to  $b$  was greater than 2.74 to 1. There is no description as to how the "offset angle" is desired in the specification, or why the "offset angle" of more than 20 degrees is beneficial. Therefore, using the ratio of  $a$  to  $b$  as claimed appears as a matter of design choice and one of ordinary skill in the art at the time of invention would be able to modify the mass of Flach to place the center of mass in a similar location achieving a similar offset angle as desired since the apparatus of Flach already comprises an undisclosed, but measurable offset angle as well.

Seidel discloses an accelerometer comprising plural inertial masses 2a-2d. The plurality of inertial masses are configured for detection of acceleration in multiple directions as opposed to that of Flach. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Flach to comprise plural inertial masses such as seen in Seidel, to allow for accelerations to be detected in two or three different dimensions with a single device.

Regarding **claim 18**, the configuration of the inertial masses of Seidel are arranged such that there are "at least three" as claimed configured identically with one another and arranged in a rectangular pattern.

Regarding **claim 19**, figure 8 of Flach shows a "first cover plate" 10 arranged on one side of the sensor and spaced by a first gap from said inertial masses as claimed.

Regarding **claim 20**, figure 8 of Flach shows a "second cover plate" 20 which is arranged on a second side of the frame opposite the first side and spaced by a second gap from the inertial masses.

Regarding **claim 21**, Flach illustrates in figure 8 "at least one conductive area respectively arranged on said first cover plate" as claimed in electrodes 12' and 12". The electrodes are located "across" the gap and facing the inertial mass as claimed to form a variable capacitance between the "conductive area" and the respective inertial mass. The capacitance depends on the distance or "spacing" between the conductive area and the inertial mass.

Regarding **claim 22**, the measurement of the deflection of the inertial mass 21 of Flach is "enabled by a differential capacitive measurement arrangement" as claimed in that the measured capacitance depending on the deflection of the mass determines the acceleration of the system.

Regarding **claim 23**, the embodiment seen in figure 8 of Flach shows the frame in between an upper and lower "cover disk" as claimed which would help to protect the system from environmental influences as claimed.

Regarding **claim 24**, Flach discloses electrodes 12 which read on the "metallized surfaces" as claimed. These surfaces seen on the bottom of figure 8 could easily be on the top if the drawing were to be inverted. Thus the "upper cover disk" can be interpreted as numeral 10 and the electrodes are seen as "close to the respective torsional pivot axis" 29 which enables a differential capacitive measurement of a deflection of each mass as claimed.

Regarding **claim 25**, the surfaces 12' and 12" are not specifically disclosed as being arranged symmetrically on either side of the pivot axis created by the torsion spring element 29 however it would have been obvious to have done so in order to ensure a constant variable capacitance is generated by sensor.

Regarding **claim 26**, figure 9 of Flach shows an evaluation circuit which reads on the "deflection measurement device" as claimed which comprises a "capacitive arrangement" to sense a deflection of each mass.

Regarding **claim 27**, the arrangement of the masses in Seidel is for detection of acceleration in three orthogonal axes as claimed. By arranging the masses of Flach in a similar manner, the result would be the same as claimed.

Regarding **claim 28**, by arranging the masses of Flach in the manner taught by Seidel, the torsional pivot axes of the masses would be oriented offset from one another by multiples of 90 degrees as claimed in order to detect acceleration in all three directions.

Regarding **claim 29**, the masses of Seidel are all arranged in one common reference plane when the sensor is at rest and the masses are not being deflected.

Regarding **claim 30**, the inertial masses of Flach are arranged in the same manner as the claimed invention and thus the sensitivity axis is perpendicular to the reference plane as claimed.

Regarding **claim 31**, there is no description as to how the "offset angle" is desired in the specification, or why the "offset angle" of 45 degrees is beneficial. Therefore, using the ratio of a to b as claimed appears as a matter of design choice and

one of ordinary skill in the art at the time of invention would be able to modify the mass of Flach to place the center of mass in a similar location achieving a similar offset angle as desired.

Regarding **claim 32**, the arrangement of the inertial masses of Seidel comprises an outer frame 5 and intermediate frame 6 as claimed with the inertial masses separated in between both frames. By substituting the inertial mass of Flach with those of Seidel in a similar framing, the result is an arrangement in which the "outer" spring element connects the inertial mass to the outer frame and the "inner" spring element connects to the inner divider frame as claimed.

Regarding **claim 33**, Flach discloses an acceleration sensor comprising an inertial mass surrounded by a frame, which is suspended by a set of two torsion spring elements 22 from a frame as seen in figure 2. As seen in the top view of figure 2 or the side views in figures 7 and 8, the inertial mass is suspended asymmetrically by the torsion spring elements thereby placing the center of gravity 30 of the inertial mass offset by a first distance (b) from the reference plane and a second distance (a), orthogonal to the first distance, from a respective second plane that extends perpendicular to said reference plane and along the pivot axis.

Seidel discloses an accelerometer comprising plural inertial masses 2a-2d. The plurality of inertial masses are configured for detection of acceleration in multiple directions as opposed to that of Flach. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Flach to comprise plural inertial masses such as seen in Seidel, to allow for accelerations to be detected in two

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or three different dimensions with a single device. Further, Seidel discloses an outer frame 5 and intermediate frame 6 as claimed with the inertial masses separated in between both frames. By substituting the inertial mass of Flach with those of Seidel in a similar framing, the result is an arrangement in which the "outer" spring element connects the inertial mass to the outer frame and the "inner" spring element connects to the inner divider frame as claimed.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK SHABMAN whose telephone number is (571)270-3263. The examiner can normally be reached on M-F 7:30am - 5:00pm, EST (Alternating Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S./

Examiner, Art Unit 2856

/Hezron Williams/

Supervisory Patent Examiner, Art Unit 2856